



## 2009 Water Quality Report

The city of Sterling Heights wants you to know your tap water is safe to drink and that it meets or surpasses all federal and state standards for quality and safety. The city of Sterling Heights is proud of the fine drinking water it supplies and is honored to provide this report to you. The 2009 Consumers Annual Report on Water Quality shows the sources of our water, lists the results of water quality tests, and contains important information about water and health. The city of Sterling Heights



will notify you immediately if there is ever any reason for concern about our water. We are pleased to show you how

the water delivered to you has surpassed water quality standards as mandated by the Environmental Protection Agency (EPA) and the State of Michigan Department of Natural Resources and Environment (DNRE).

### About Our System

The city purchases its drinking water from the Detroit Water and Sewerage Department (DWSD). The water is treated and processed before being delivered to the city's water distribution system.

### Source Water

Your source water comes from either the Detroit River, within the Lake St. Clair, Clinton River, Detroit River, Rouge River, Ecorse River, in the U.S. and parts of the Thames River, Little River, Turkey Creek and Sydenham watersheds in Canada or from the lower Lake Huron watershed. The watershed includes numerous short, seasonal streams that drain to Lake Huron.

The DNRE, in partnership with the U.S. Geological Survey, the DWSD and the Michigan Public Health Institute, performed a source water assessment to determine the susceptibility of potential contamination. The susceptibility rating is on a seven-tiered scale from very low to high based primarily on geologic

sensitivity, water chemistry and contaminant sources. The susceptibility of the Detroit River source water intakes were found to be highly susceptible to potential contamination.

The Lake Huron source water intake is categorized as moderately low susceptibility to potential contaminate sources. However, all Detroit water treatment plants that use source water from the Detroit River and the Lake Huron water treatment plant have historically provided satisfactory treatment to meet drinking water standards.

For more information, please contact the Sterling Heights Department of Public Works at (586) 446-2440.

### How Do We Know The Water Is Safe To Drink?

The city of Detroit treatment facilities operate 24 hours a day, seven days a week. The treatment process begins with disinfecting the source water with chlorine to kill harmful microorganisms that can cause illness. Next, a chemical called Alum is mixed with the water to remove the fine particles that make the water cloudy or turbid. Alum causes the particles to clump together and settle to the bottom. Fluoride is also added to protect our teeth from cavities and decay. The water then flows through fine sand filters called beds. These filters remove even more particles and certain microorganisms that are resistant to chlorine. Finally, a small amount of phosphoric acid and chlorine are added to the treated water just before it leaves the treatment plant. The phosphoric acid helps control the lead that may dissolve in water from household plumbing systems. The chlorine keeps the water disinfected as it travels through the water mains to reach your home. In addition to a carefully controlled and monitored treatment process, the water is tested for a variety of substances before treatment, during various stages of treatment and throughout the distribution system. The DWSD tests hundreds of samples each week in their certified laboratories by a highly qualified, trained staff. Detroit

water not only meets safety and health standards, but also ranks among the top 10 in the country for quality and value. For more information about safe drinking water, visit the EPA at [www.epa.gov/safewater/](http://www.epa.gov/safewater/).

### Additional Information

In order to ensure that tap water is safe to drink, EPA prescribes regulations, which limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
- Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.
- Pesticides and herbicides, from a variety of sources such as agriculture, urban storm water runoff and residential uses.
- Organic chemical contaminants, including synthetic and volatile organics, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff and septic systems.

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- Radioactive contaminants, naturally occurring or the result of oil and gas production and mining activities.

## HEALTH INFORMATION:

### Lead

Since 1992, the city's water division has been testing homes with plumbing systems that may contribute lead to their household water supply. Of the twenty (20) homes tested in 2008, none were found to have lead levels above the action level. Homes in Sterling Heights do have copper pipes that prior to late 1988 were connected by lead solder. Lead solder was widely used prior to being banned in 1988, but it is still available in hardware stores for purposes other than home plumbing. The actual presence of lead connections does not indicate a lead problem. Over time, a protective coating builds up inside the pipe. This coating can reduce the amount of lead that might dissolve in the water. If your home was built prior to 1989, it may have piping that has lead soldered joints. If present, elevated levels of lead can cause serious health problems, especially for women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The city of Sterling Heights is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at: <http://www.epa.gov/safewater/lead>.

### Detected Contamination Tables

These tables are based on tests conducted by DWSD in 2009. Many tests are conducted throughout the year however, only tests that show the presence of a contaminant are shown here. The table below is a key to the terms used in the tables throughout this report.

Symbol	Abbreviation for	Definition/Explanation
MCLG	Maximum Contaminant Level Goal	The level of contaminant in drinking water below which there is no known or expected risk to health.
MCL	Maximum Contaminant Level	The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using best available treatment technology.
MRDLG	Maximum Residual Disinfectant Level Goal	The level of a drinking water disinfectant below which there is no known or expected risk of health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
MRDL	Maximum Residual Disinfectant Level	The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary to control contaminants.
ppb	Parts Per Billion (one in one billion)	The ppb is equivalent to micrograms per liter. A microgram = 1/1000 milligram.
ppm	Parts Per Million (one in one million)	The ppm is equivalent to milligrams per liter. A milligram = 1/1000 gram.
NTU	Nephelometric Turbidity Units	Measures the cloudiness of water.
TT	Treatment Technique	A required process intended to reduce the level of a contaminant in drinking water.
AL	Action Level	The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements which a water system must follow.
HAA5	Haloacetic Acids	HAA5 is the total of bromoacetic, chloroacetic, dibromoacetic, dichloroacetic and trichloroacetic acids. Compliance is based on the total.
TTHM	Total Trihalomethanes	Total Trihalomethanes is the sum of the chloroform, bromodichloromethane, dibromochloromethane and bromoform. Compliance is based on the total.
n/a	Not Applicable	

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at (800) 426-4791.

### People With Special Health Concerns

Some people may be more vulnerable to contaminants in drinking water than the general population. Immune-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline, (800) 426-4791.

#### Q. *Is the cloudy water safe?*

A. Water that appears milky is usually the result of harmless tiny air bubbles (dissolved oxygen) trapped in the water, like gas bubbles in carbonated soft drinks. After a glass of this water sits for a few minutes, the water will become clear as the air bubbles float to the top. Since cold water can hold more dissolved oxygen than warm water, this type of cloudiness occurs more often in winter. As the water warms up in your household plumbing, the extra oxygen does not stay dissolved and is released; thus air bubbles. Air bubbles do not affect the safety of the water. If you experience cloudy water that does not clear, call the DPW at (586) 446-2440.

#### Q. *Is the chlorine used to disinfect water harmful to my health?*

A. DWSD uses chlorine to disinfect our drinking water. Chlorine has been used to treat municipal water in the United States since 1908 and it is the most effective way to ensure that water stays disinfected as it travels through water delivery systems. Chlorine prevents waterborne epidemics such as cholera, typhoid and hepatitis. The amount of chlorine in the drinking water as it leaves the treatment plant is typically 1 milligram per liter (ppm). Chlorine in this quantity poses no known or expected health risk.

### Public Participation Opportunities

We welcome your comments and opinions about this Sterling Heights 2009 Annual Water Quality Report and will be happy to answer any questions you may have. Please direct your comments or questions to DPW at (586) 446-2440.

*For more Detected Contamination Tables, see Page 12.*



## 2009 WATER QUALITY REPORT

The state allows us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. All of the data is representative of the water quality, but some are more than one year old.

### 2009 City of Sterling Heights Regulated Detected Contaminants Tables of Water Delivered from the Regional Detroit Water System

Contaminant	Test Date	Units	Health Goal MCLG	Allowed Level MCL	Level Detected	Range of Detection	Violation yes / no	Major Sources in Drinking Water
<b>Inorganic Chemicals - Annual Monitoring at Plant Finished Water Tap</b>								
Fluoride	8/31/09	ppm	4	4	1.26	n/a	no	Erosion of natural deposits; Water additive to promotes strong teeth; Discharge from fertilizer & aluminum factories.
Nitrate	8/31/09	ppm	10	10	0.29	n/a	no	Fertilizer runoff; Septic tank leaching, sewage; Erosion of natural deposits.
Barium	6/9/08	ppm	2	2	0.01	n/a	no	Discharge of drilling wastes; Discharge from metal refineries; Natural erosion
Selenium	6/9/08	ppb	50	50	1	n/a	no	Discharge from petroleum and metal refineries; Natural erosion; Mine discharge
<b>Disinfectant Residuals and Disinfection By-Products - Monitoring in Distribution System</b>								
Total Trihalomethanes (TTHM)	2/09 – 11/09	ppb	n/a	80	23.4	13.1 - 40.9	no	By-product of drinking water chlorination
Haloacetic Acids (HAA5)	2/09 – 11/09	ppb	n/a	60	13.1	1.2 - 19.3	no	By-product of drinking water disinfection
Disinfectant (Total Chlorine Residual)	1/09 – 12/09	ppm	MRDGL 4	MRDL 4	0.83	0.68 - 0.85	no	Water additive used to control microbes

### 2009 Turbidity – Monitored every four hours at Plant Finished Water Tap

Highest Single Measurement Cannot exceed 1 NTU	Lowest Monthly % of Samples Meeting Turbidity Limit of 0.5 NTU (minimum 95%)	Violation yes / no	Major Sources in Drinking Water
0.20 NTU	100%	no	Soil Runoff
Turbidity is a measure of the cloudiness of water. We monitor it because it is a good indicator of the effectiveness of our filtration system. For turbidity levels 5 NTU or above, a treatment technique (TT) is required.			

### 2009 Microbiological Contaminants – Monthly Monitoring in Distribution System

Contaminant	MCLG	MCL	Highest Number Detected	Violation yes / no	Major Sources In Drinking Water
Total Coliform Bacteria	0	Presence of Coliform bacteria > 5% of monthly samples	0 in a year (out of 243 samples)	no	Naturally present in environment
E. coli or fecal coliform bacteria	0	A routine sample and a repeat sample are total coliform positive, and one is also fecal or E. Coli positive	0 in a year (out of 243 samples)	no	Human waste and animal fecal waste

### 2009 Special Monitoring

Contaminant	MCLG	MCL	Level Detected	Source of Contamination
Sodium (ppm)	n/a	n/a	5.22	Erosion of natural deposits.

Unrelated contaminants are those for which EPA has not established drinking water standards. Monitoring helps EPA to determine where certain contaminants occur and whether it needs to regulate those contaminants

### 2009 Sterling Heights Lead and Copper Testing Results

Contaminant	Test Date	Units	Health Goal MCLG	Action Level AL	90th Percentile Value	Number of Samples Over AL	Violation yes / no	Major Sources in Drinking Water
Lead	2008	ppb	0	15	0 ppb	0	no	Corrosion of household plumbing system; Erosion of natural deposits.
Copper	2008	ppm	1.3	1.3	0.28 ppb	0	no	Corrosion of household plumbing system; Erosion of natural deposits; Leaching from wood preservatives
* The 90th percentile value means 90 percent of the homes tested have lead and copper levels below the given 90th percentile value. If the 90th percentile value is above the AL, additional requirements must be met.								
Regulated Contaminant	Treatment Technique Running Annual Average Monthly Ratio Range Violation: Yes/No							Typical Source of Contaminant
Total Organic Carbon (ppm)	The Total Organic Carbon (TOC) removal ratio is calculated as the ratio between the actual TOC and the TOC removal requirements. The TOC was measured each month and because the level was low, there is no requirement for TOC removal.							Natural erosion

## Flood insurance available

Residents can buy federal flood insurance no matter where they live in the city of Sterling Heights because the city belongs to the National Flood Insurance Program.

The program was created in 1968 to provide affordable flood insurance to people who live in areas with the



greatest risk of flooding called Special Flood Hazard Areas.

In fact, under the National Flood

Insurance Act, lenders

must require borrowers whose property is located within a Special Flood Hazard Area to purchase flood insurance as a condition of receiving a federally-backed mortgage loan.

Unfortunately, homeowners often do not find out until it is too late that their homeowner's policies do not cover flooding. Federal flood insurance protects your most valuable assets, your home and belongings.

The city of Sterling Heights Office of Engineering (586- 446-2580) will help you determine if you are in a flood plain, and if you are, they will assist you with information pertaining to protecting your property from floods.

The Sterling Heights Public Library maintains a section on flood insurance and how to protect your home from flooding. Remember, you can purchase flood insurance whether you live in or outside of a flood plain.

Just because you haven't experienced a flood in the past, doesn't mean you won't in the future. Flood risk isn't just based on history, it's also based on a number of factors: rainfall, river-flow and tidal-surge data, topography, flood-control measures and changes due to building and development.

A prolonged rain event over several days or an ice jam can cause a river, stream or drain to overflow or flood the surrounding areas.